

## Appendix 3: Riverbasin and watershed “Forestry Leaflets” and maps



FM-35

August 2004

### A Guide to Implementing the Catawba Riparian Buffer Rule For Forest Harvesting Activities in North Carolina

The permanent “Catawba Riparian Buffer Rule” 15A NCAC 02B .0243 became effective August 1, 2004. There are certain restrictions on forest harvesting activities within this riparian buffer.

#### **Where This Rule Applies along the Catawba River**

The Catawba Riparian Buffer Rule only applies in North Carolina along the main-stem of the Catawba River below Lake James and along the main-stem lakes from and including Lake James, to the NC/SC border.

This Leaflet is not intended to provide legal advice or a final interpretation of the Catawba Riparian Buffer Rule. Obtain assistance from NC Division of Water Quality in determining the applicability of this rule on a specific site.

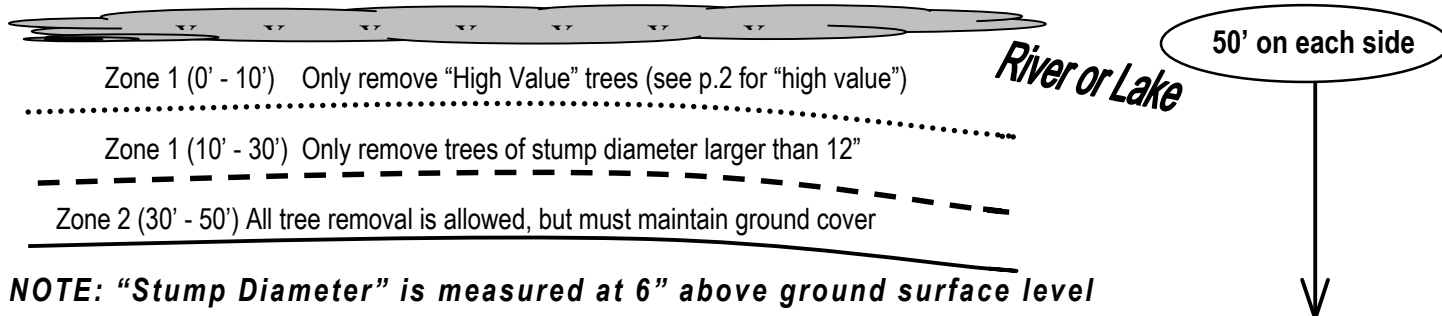
On intermittent and perennial streams or waterbodies where the Catawba Riparian Buffer Rule does not apply **a SMZ is still required** during forestry-related site disturbing activities to comply with the North Carolina Forest Practices Guidelines Related to Water Quality (FPGs).

There may be other requirements in this ‘buffer rule’ that forestry activities must comply with that are not covered in this Leaflet. Check the entire rule document for all requirements related to road construction and land disturbing activities.

#### **Required Riparian Buffer Width and Zones**

**The Catawba Riparian Buffer is made up of two zones that together equal 50 feet in width:**

**Zone 1** = the closest 30 feet (10' + 20') extending outward from the waterbody (*see section below*) and ,  
**Zone 2** = the next 20 feet extending from the end of Zone 1 out away from the waterbody



**NOTE: “Stump Diameter” is measured at 6” above ground surface level**

#### **How to Measure the Catawba Riparian Buffer**

##### **For Catawba River:**

Measurement starts “at the most landward limit of the top of the bank”

##### **For the main-stem lakes:**

Measurement starts at the “most landward limit of the full-pond level.”

The full-pond level may be obtained from the Lake Levels section of the Duke Power Company website [www.dukepower.com](http://www.dukepower.com) or by calling Duke Power Company toll-free at 1-800-829-LAKE (1-800-829-5253).



## **Timber Harvesting in the Catawba Riparian Buffer**

**Selective timber harvesting is only allowed to occur in the 50-foot buffer if:**

- 1) A forest management plan for the property is prepared or approved by a Registered Forester, **OR**
- 2) The property has “a deferment for use-value under forestry”.

### **Riparian Buffer Zone 1 ( 0’ to 30’ )**

<b><u>Allowed</u></b>	Trees shall be removed with minimal disturbance to soil and residual vegetation.
<b><u>Allowed with Limitations</u></b>	Tracked or wheeled vehicles are not permitted except at stream crossings designed, constructed and maintained in accordance with N.C. FPG .0203
<b><u>Not Allowed</u></b>	Soil disturbing site preparation activities

#### **Inner Zone 1 ( 0’ to 10’ )**

- Allowed** Removal of only individual “High Value” trees; Protect and maintain other forest vegetation
- “High Value” trees are defined as any tree whose stump diameter is 18” or larger

**NOTE =====► “Stump Diameter” is measured at 6” above ground surface level**

#### **Outer Zone 1 ( 10’ to 30’ )**

- Allowed** Limited amount of timber removal
- Harvest of any tree with a stump diameter larger than 12”
    - \* Re-entry into natural forest shall be no more frequent than every 15 years.
    - \* Re-entry into plantation forest shall be no more frequent than every 5 years.
- In either case, the trees remaining after harvest shall be as evenly spaced as possible.

### **Other Forestry Activities in Zone 1 of the Catawba Riparian Buffer**

#### **Forestry activities allowed in Zone 1 of the riparian buffer**

- ✓ Individual trees may be treated to maintain or improve their health, form or vigor.
- ✓ Removal of individual trees that are in danger of causing damage to structures or human life.

#### **Forestry activities allowed with limitations, in Zone 1 of the riparian buffer**

- Harvesting of dead or infected trees or application of pesticides necessary to prevent or control extensive tree pest and disease infestation. *These practices must be approved by the Division of Forest Resources for a specific site.* The Division of Forest Resources must notify the Division of Water Quality of all approvals.
- Timber felling shall be directed away from the waterbody.
- Skidding shall be directed away from the waterbody and shall be done in a manner that minimizes soil disturbance and prevents the creation of channels or ruts, and must comply with N.C. FPG .0203
- Natural regeneration of forest vegetation and planting of trees, shrubs, or ground cover plants to enhance the buffer, provided that soil disturbance is minimized. Plantings shall consist primarily of native species.
- Application of fertilizer only allowed as necessary for permanent stabilization. Broadcast application of fertilizer or herbicides to the adjacent forest stand shall be conducted so that the chemicals are not applied directly to or allowed to drift into the buffer.

#### **Forestry activities not allowed in Zone 1 of the riparian buffer**

- ✗ Logging decks or sawmill sites.
- ✗ Prescribed burns.

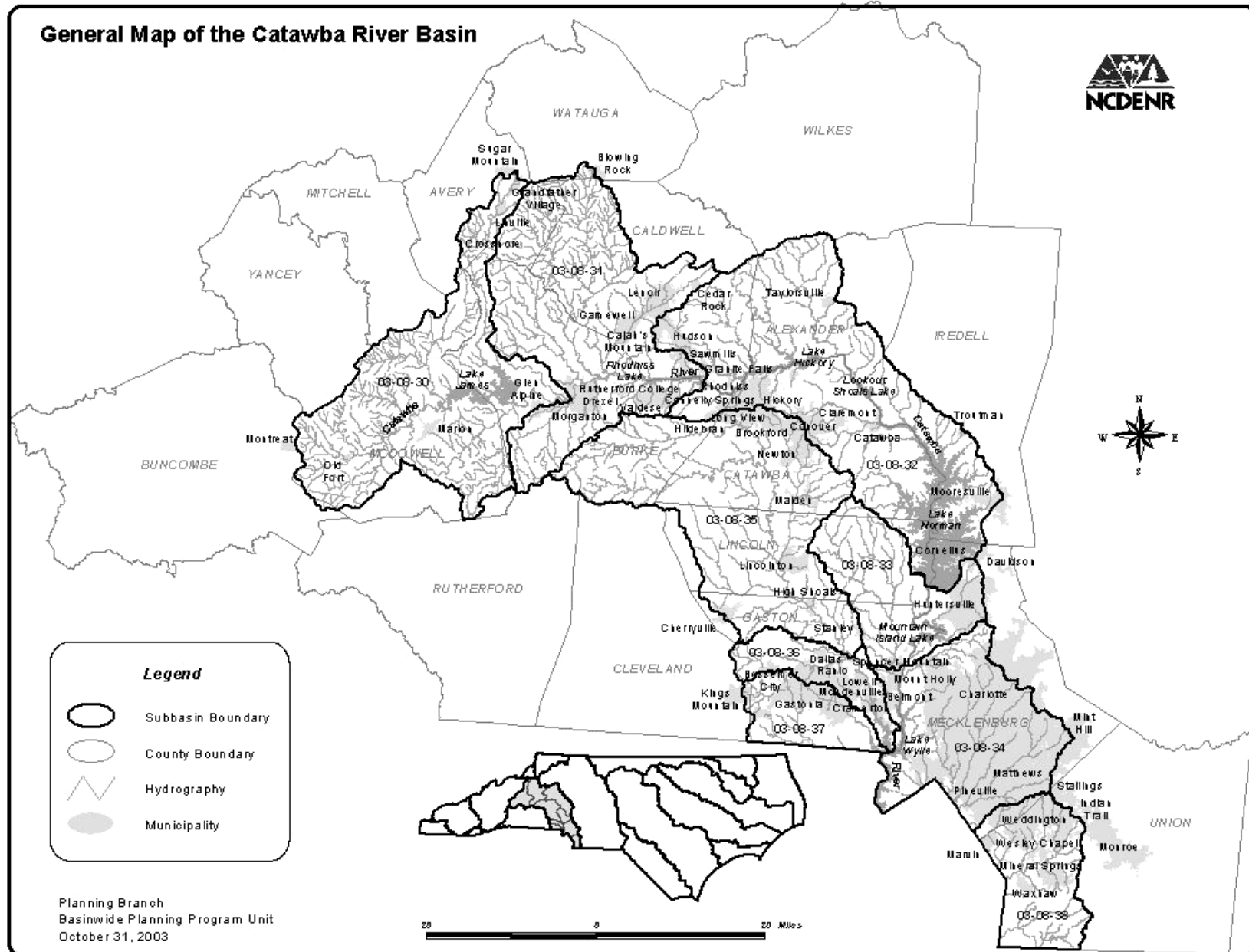
### **Riparian Buffer Zone 2 ( 30’ to 50’ )**

**Harvesting and regeneration of the forest stand is allowed as long as these activities comply with the N.C. FPGs**

- There may be additional requirements of this ‘buffer rule’ that forestry activities must comply with that are not covered in this Leaflet. Check the entire rule document for all necessary requirements related to road construction and other land disturbing activities.
- Additional information is available in the ‘Water Quality’ section of the N.C. Division of Forest Resources website [www.dfr.state.nc.us](http://www.dfr.state.nc.us) and the Non-Point Source (NPS) Pollution section of the N.C. Division of Water Quality website <http://h2o.enr.state.nc.us/nps/>, or by contacting local offices of either agency.



## General Map of the Catawba River Basin





# FORESTRY Leaflets

North Carolina Division of Forest Resources

FM-34

April 2004

## A Guide to Implementing Neuse River Basin and Tar-Pamlico River Basin Riparian Buffer Rules for Forest Management Activities

Additional rule information is available on the 'Water Quality' portion of the N.C. Division of Forest Resources Web site [www.dfr.state.nc.us](http://www.dfr.state.nc.us) and the Non-Point Source (NPS) Planning Unit portion of the N.C. Division of Water Quality Web site <http://h2o.enr.state.nc.us/nps/> or by contacting staff from either agency, or DENR Regional offices.

### WHERE TO APPLY THESE RIVER BASIN RIPARIAN BUFFER RULES

The Neuse River Basin and Tar-Pamlico River Basin 'Riparian Buffer Rules' apply to perennial and intermittent streams, ponds, lakes, and estuaries located in either river basin, and which are approximately shown on the most recent version of either an NRCS soil survey map or a USGS 1:24000 (7½ minute) quad topographic map.

### X The Neuse River or Tar-Pamlico River Riparian Buffer Rules do not apply to the following waterbodies:

- x Any "surface waters" that do not appear on either of the above named soils or topographic maps
- x Any ephemeral streams (sometimes referred to as saddles, swales, gullies, or stormwater channels)
- x Man-made ditches or canals that are not intended for water navigation or boat access
- x Man-made ponds and lakes that are located outside natural drainage ways

Seek advice from a professional trained in stream identification when determining 'buffer rule' applicability. Modified streams may look like ditches, but still require implementing these river basin riparian buffer rules. This Leaflet is not intended to provide legal advice or final interpretation of the Neuse River or Tar-Pamlico River riparian buffer rules.

On waterbodies where the river basin riparian buffer rules do not apply, *an SMZ is still required* to comply with the Forest Practices Guidelines Related to Water Quality (FPGs).

### REQUIRED RIVER BASIN RIPARIAN BUFFER WIDTH and ZONES

The buffer is made up of two "zones" that together equal a 50-foot wide strip of land:

#### Zone 1 - For streams:

Zone 1 begins at the most landward limit of the top of bank, or the rooted vegetation, and extends towards the land for 30 feet on all sides.

#### Zone 1 - For ponds, lakes, reservoirs:

Zone 1 begins at the most landward limit of the normal water level, or the rooted vegetation, and extends towards the land for 30 feet.

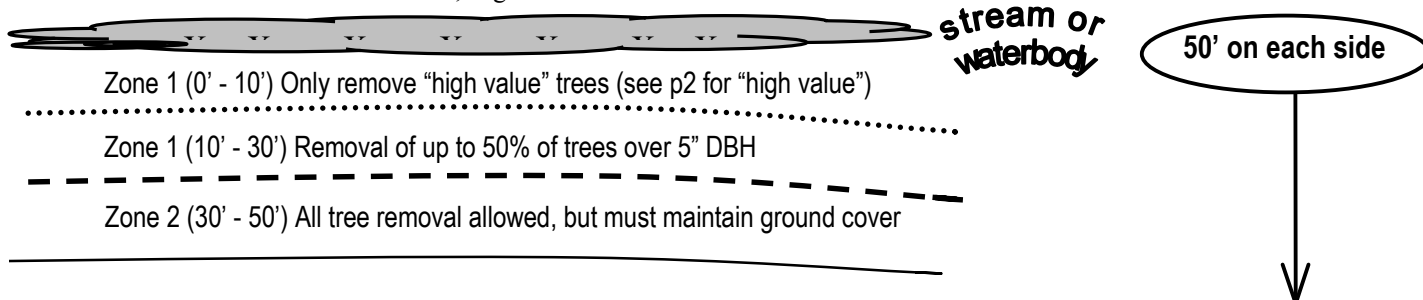
#### Zone 1 - For the 20 Coastal NC counties:

Zone 1 begins at the most landward limit of the following options, whichever is more restrictive (*see a,b,c below*) and extends toward the land for 30 feet:

- (a) the normal high water level, or (b) the normal water level, or
- (c) the landward limit of coastal wetlands as defined by NC Div. of Coastal Management

#### Zone 2 - For all sites:

Zone 2 begins at the outer edge of Zone 1 and extends outward 20 feet and shall consist of a stable, vegetated area. Ground cover must allow water infiltration and diffusion.





## **TIMBER HARVESTING IN THE RIPARIAN BUFFER**

**Selective timber harvesting is only allowed to occur in the 50 foot buffer if:**

- 3) A forest management plan for the property is prepared or approved by a Registered Forester, **or**
- 4) The property is enrolled in that county's present-use valuation program for forestry use.

### **All of Zone 1** (total of 30 feet with 'Inner' & 'Outer' areas defined below)

<b><u>Allowed</u></b>	Tree removal, provided that disturbance to soil and residual vegetation is minimized.
<b><u>Allowed with Restrictions</u></b>	<b>Tracked or wheeled vehicles are not permitted except at stream crossings designed, constructed, and maintained in accordance with FPG .0203</b>
<b><u>Not Allowed</u></b>	Soil disturbing site preparation activities

### **Zone 1 - Inner 10 feet** (land immediately adjacent to the stream or waterbody)

<b><u>Allowed</u></b>	Removal of individual "High Value" trees
<b><u>Allowed with Restrictions</u></b>	<ul style="list-style-type: none"> <li>• "High Value" Pine trees are defined as any tree with a DBH of 14" and greater <b><u>or</u></b> a stump diameter of 18" and greater</li> <li>• "High Value" Hardwood and Wetland trees are defined as any tree with a DBH of 16" and greater, <b><u>or</u></b> a stump diameter 24" and greater</li> </ul>
<b><u>Not Allowed</u></b>	<b>Removal of any tree with exposed primary roots visible in the streambank.</b> <ul style="list-style-type: none"> <li>• It is recommended to mark/flag residual "leave" trees to make sure they are protected.</li> </ul>

### **Zone 1 – Outer 20 feet** (land adjoining the inner 10 feet area)

<b><u>Allowed</u></b>	<ul style="list-style-type: none"> <li>• Limited amount of timber removal</li> <li>• Remaining trees left standing should be as evenly spaced as possible.</li> </ul>
<b><u>Allowed with Restrictions</u></b>	Harvest of no more than 50% of the trees over 5" DBH <ul style="list-style-type: none"> <li>• Re-entry for natural forest is allowed every 15 years.</li> <li>• Re-entry for plantation forest is allowed every 5 years.</li> </ul>
<b><u>Not Allowed</u></b>	Removal of trees 5" DBH and smaller

### **All of Zone 2** (outermost 20 feet of the entire riparian buffer)

There are no tree harvesting or site-prep restrictions in Zone 2, so long as there is sufficient ground cover maintained to provide for diffusion and infiltration of water runoff. *All activities must still comply with the N.C. FPGs.*

## **OTHER FORESTRY ACTIVITIES IN THE RIPARIAN BUFFER**

### **Forestry Activities Allowed in the Entire 50-foot Riparian Buffer**

- ✓ Individual trees may be treated to maintain or improve their health, form, or vigor.
- ✓ Harvesting of dead or infected trees or application of pesticides necessary to prevent or control extensive tree pest and disease infestation. These practices must be approved by the Division of Forest Resources for a specific site. The Division of Forest Resources must notify the Division of Water Quality of all approvals.
- ✓ Removal of individual trees that are in danger of causing damage to structures or human life.

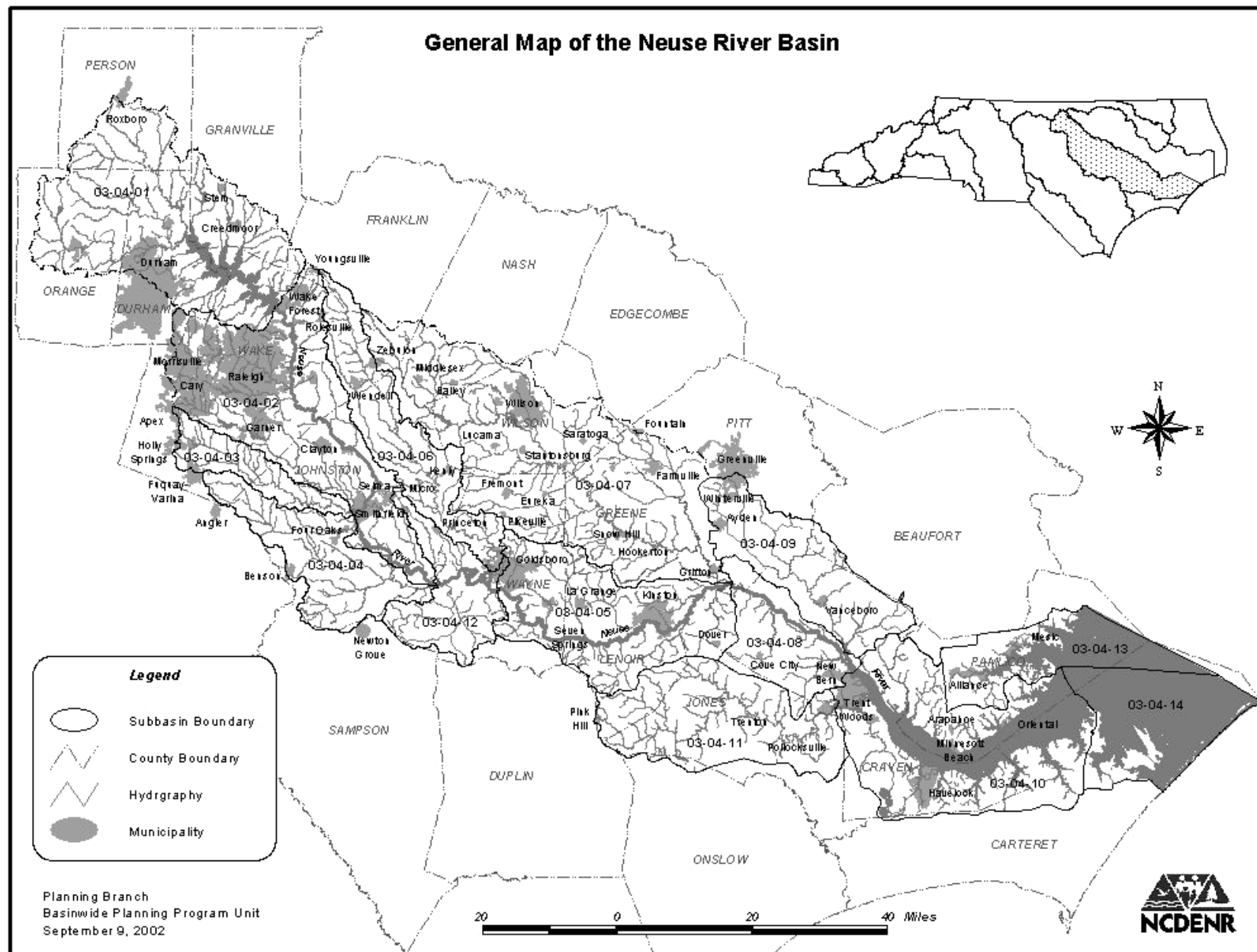
### **Forestry Activities Allowed with Restrictions, in the Entire 50-foot Riparian Buffer**

- ✎ Access roads and skid trails only allowed for temporary and permanent stream crossings, which are established in accordance with FPG .0203. Temporary stream crossings shall be permanently stabilized after any site disturbing activity is completed.
- ✎ Timber felling shall be directed away from the stream or waterbody.
- ✎ Skidding shall be directed away from the stream or waterbody and shall be done in a manner that minimizes soil disturbance and prevents rutting or the creation of channels.
- ✎ Natural regeneration of forest vegetation and planting of trees, shrubs, or ground cover plants to enhance the buffer shall be allowed provided that soil disturbance is minimized. Plantings shall consist primarily of native species.
- ✎ Application of fertilizer only allowed as necessary for permanent stabilization. Broadcast application of fertilizer or herbicides to the adjacent forest stands shall be conducted so that the chemicals are not applied directly to or allowed to drift into buffer.

### **Forestry Activities Not Allowed in the 50-foot Riparian Buffer**

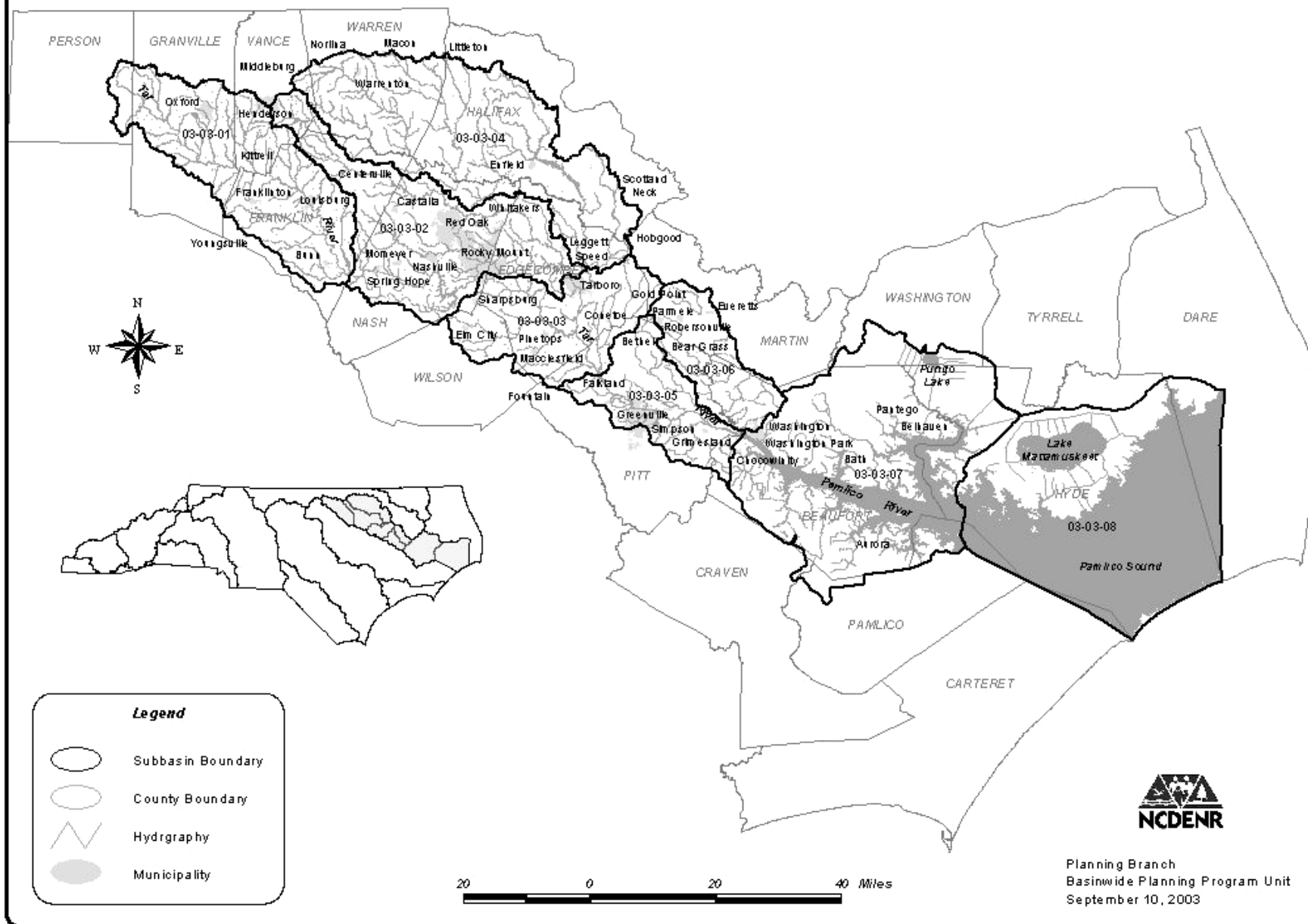
- ✎ NO logging decks or sawmill sites placed in the buffer; and NO high intensity prescribed burns.







## General Map of the Tar-Pamlico River Basin







FM-37

November 2004

## A Guide to Implementing the Randleman Lake Watershed Riparian Buffer Rule for Forest Management Activities

N.C. Administrative Code (15A NCAC 02B .0250) requires protecting and maintaining riparian areas along waterbodies located in the watershed of Randleman Lake. This Lake is located northwest of Randleman, NC but its watershed is in portions of Forsyth, Guilford and Randolph counties. Contact the N.C. Division of Water Quality's Winston-Salem Regional Office for more information or visit the Web: <http://h2o.enr.state.nc.us>.

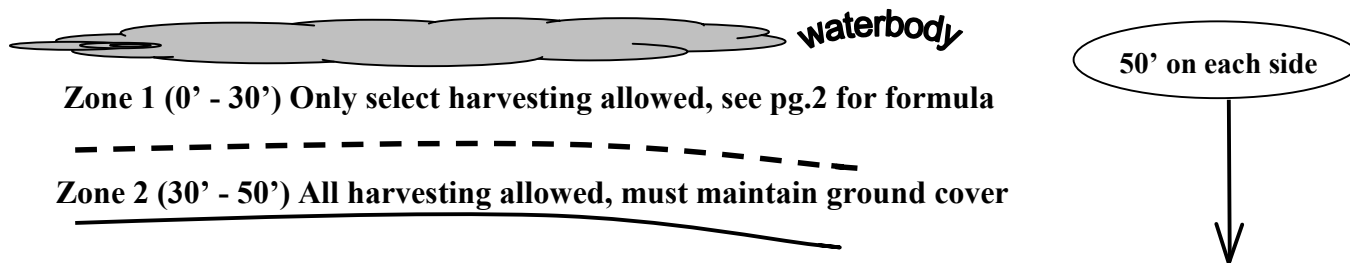
### Where To Apply This Rule

- ▶ This rule applies to all intermittent streams, perennial streams, lakes, and ponds in the watershed of Randleman Lake if it is indicated by any of these methods:
    - It appears on the most recent version of a USGS 1:24000 ("7.5 Minute Quad") topographic map
    - It appears on the most recent version of an USDA-NRCS Soil Survey map
    - If site-specific evidence indicates to the NC Division of Water Quality (DWQ) the presence of waters not shown on either of these two maps.
  - ▶ This rule also applies to any ditch connected to other surface waters that are classified by DWQ
  - ▶ This rule also applies to any modified streams
- ✕ The following waterbodies do not require the Randleman Lake riparian buffer rule:
- Any man-made ditch, pond, or lake that is not connected to surface waters or located in a natural drainage way;
  - Areas mapped as intermittent streams, perennial streams, lakes, ponds, or estuaries on the most recent versions of either a USGS 1:24000 scale topographic map or NRCS soil survey map where no perennial waterbody, intermittent waterbody, lake, pond or estuary actually exists on the ground.

### Required Riparian Buffer Widths and Zones

The buffer has 2 Zones that together equal 50 feet extending around all sides of the waterbody:

- **Zone 1** = The closest 30 feet from the edge of the waterbody extending towards land, **AND**;
- **Zone 2** = the next 20 feet towards land, extending from the end of Zone 1





## How To Measure the Buffer Width

**For intermittent and perennial streams:** Measurement “begins at the top of bank”  
**For any other waterbody:** Measurement “begins at the top of bank or mean high water line”

### Timber Harvesting in the Randleman Lake Watershed Riparian Buffer

#### Zone 1 (from 0' to 30')

► **These conditions for harvesting in Zone 1 must be met every 100 feet on each side of the stream:**

- A minimum of five (5) trees that are 12" DBH or larger must remain uncut
- No trees less than 12" DBH may be harvested in Zone 1 unless exceptions provided in the Rule are met
- No tracked or wheeled equipment is allowed in Zone 1
- Trees may not be harvested more frequently than every ten (10) years
- Number of trees allowed for harvest =  
**Step 1)** Count total number of trees with DBH larger than 12"  
**Step 2)** Subtract 5 from this number  
**Step 3)** Divide this new total in half. ***This is the # of harvest trees.***

#### Example

In a 100-foot section of riparian buffer Zone 1, you counted a total of 8 trees with a DBH larger than 12". In this case  $(8 - 5) = 3$ . Take half of 3 =  $1\frac{1}{2}$ . In the real world, a “half-tree” is not practical, therefore *for this single 100-foot section* of buffer Zone 1, it is recommended that only **1 tree of DBH larger than 12"** be harvested.

✗ **No fertilizer application is allowed in Zone 1**

#### Zone 2 (from 30' to 50')

**ALLOWED:** Periodic mowing and removal of plant products such as timber, nuts, and fruit, provided the intended purpose of the riparian area is not compromised by harvesting, disturbance, or loss of forest or herbaceous ground cover

**ALLOWED:** Grading and timber harvesting, provided that vegetated ground cover be established immediately following completion of the land-disturbing activity

*There are no additional timber harvesting restrictions in Zone 2, but FPG standards still must be met*

**This Leaflet is not intended to provide legal advice or final interpretation of the Randleman Lake riparian buffer rule.**

**Seek assistance from DWQ or the local city, town, or county to determine if this buffer rule applies to a site.**

There may be additional requirements of this ‘buffer rule’ not covered in this Leaflet that forestry activities must comply with.

Check the entire rule document for all necessary requirements related to road construction and other land disturbing activities.

**An SMZ is still required** to comply with the Forest Practices Guidelines Related to Water Quality (FPGs), even if a forestry site does not require implementing the Randleman Lake riparian buffer rule.



## **Forestry Activities in the Randleman Lake Watershed Riparian Buffer**

### **REQUIRED in the entire 50-foot buffer**

- Sheet flow of water must be maintained to the maximum extent practical through dispersing concentrated runoff flow and re-establishment of vegetation to maintain the effectiveness of the riparian area.
- Concentrated runoff from any new ditches or man-made diversions must be dispersed into sheet flow before the runoff enters Zone 2 of this riparian buffer area.
- Periodic corrective action to restore sheet flow shall be taken by the landowner if necessary to impede the formation of erosion gullies.

### **ALLOWED in the entire 50-foot buffer**

- ✓ Stream crossings associated with timber harvesting allowed only if performed in accordance with the FPGs.
- ✓ Natural regeneration of forest vegetation and planting vegetation to enhance the riparian area, if disturbance is minimized, provided that any plantings shall primarily consist of locally native tree and/or shrub species.
- ✓ Horticulture or silvicultural practices to maintain the health of individual trees
- ✓ Removal of individual trees which are in danger of causing damage to structures or the stream channel
- ✓ Removal of dead trees and other timber cutting techniques necessary to prevent extensive pest or disease infestation if recommended by Director, Division of Forest Resources and approved by Director, Division of Water Quality.
- ✓ Ongoing agricultural operations, provided that existing forest vegetation is protected
- ✓ Timber removal and skidding of trees shall be directed away from the waterbody. Skidding shall be done in a manner to prevent the creation of ephemeral channels that direct into a waterbody. Any tree removal must be performed in a manner that does not compromise the intended purpose of the riparian area and is in compliance with applicable FPGs.
- ✓ Periodic maintenance of modified natural streams such as canals is allowed provided that disturbance is minimized and the structure and function of the riparian area is not compromised.

### **NOT ALLOWED in the entire 50-foot buffer**

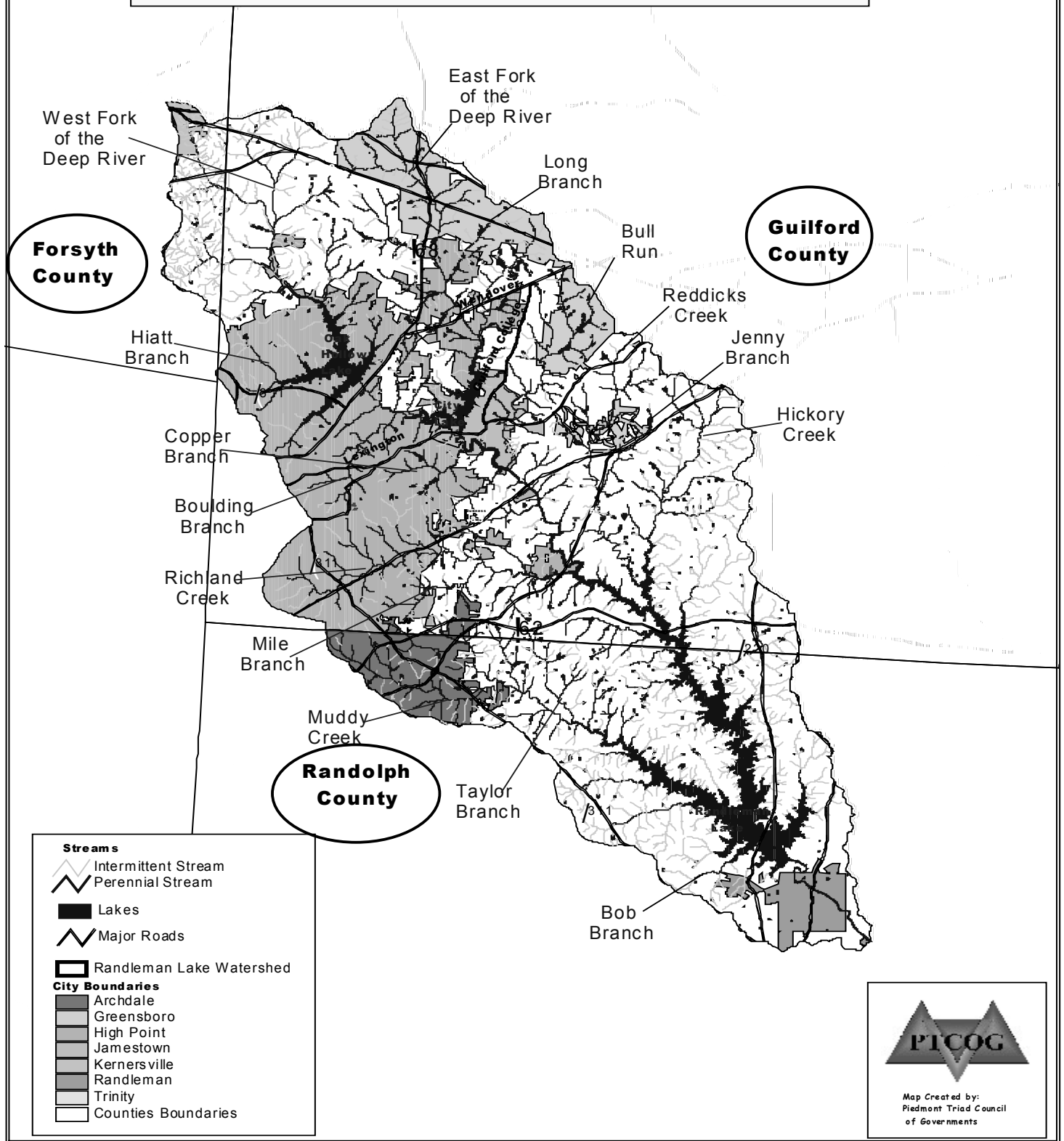
- ✗ Any activity that threatens the health and function of the vegetation including, but not limited to, application of chemicals in amounts exceeding the manufacturer's recommended rate, uncontrolled sediment sources on adjacent lands, and the creation of any areas with bare soil.

**There may be additional requirements of this 'buffer rule' not covered in this Leaflet  
that forestry activities must comply with.**

**Check the entire rule document for all necessary requirements related to road construction and  
other land disturbing activities.**



# Randleman Lake Watershed



Watershed map created by and provided courtesy of the Piedmont Triad Council of Governments [www.ptcog.org](http://www.ptcog.org)